

REMARKS

Reconsideration and withdrawal of all grounds of rejection are respectfully requested in view of the above amendments and the following remarks.

Elected claims 1-18 and 26 remain in this application. Non-elected claims 19-25 and 27-34 have been canceled without prejudice or disclaimer. Claims 35-43 have been added.

1. Applicants acknowledge the Examiner's consideration of the Supplemental Information Disclosure Statement filed April 1, 2003. However, Applicants have not received the initialed Forms 1449 indicating the Examiner's consideration of the references identified by the Information Disclosure Statement filed December 11, 2001 or the references identified by the Supplemental Information Disclosure Statement filed February 21, 2002. It is requested that the Examiner initial the PTO 1449 forms and mail them to the undersigned. An additional Supplemental Disclosure Statement is filed herewith for consideration by the Examiner.

2. Applicants hereby affirm, without traverse, the provisional telephone election made to prosecute the invention of Group I, claims 1-18 and 26, drawn to a chiral nematic liquid crystal display. The Office Action states in support of restriction, that the product as claimed can be used in a materially different way, "namely the device as claimed in Group I device claims need not use the reflected circularly polarized light with said material when said material exhibits said planar texture." While Applicants do not necessarily agree with the Examiner's reasoning, they are not contesting the Restriction Requirement. It is acknowledged that claims 19-25 and 27-34 are withdrawn as being directed to a non-elected invention. These claims have been deleted to expedite the prosecution. Applicants reserve the right to prosecute these claims in a Divisional Application.

3. Claims 1-5 were rejected under 35 U.S.C. §103 over Maeda U.S. Patent No. 6,285,422 in view of Aso U.S. Patent No. 5,965,874.

It is respectfully submitted that the Office Action has not established a *prima facie* case of obviousness. The main reference relied on, Maeda, does not disclose the claimed combination of features recited in claim 1: a) a chiral nematic liquid crystal display material located between first and second substrates including focal conic and planar textures that are stable in the absence of an electric field, b) an ambidextrous circular polarizer located adjacent to the first substrate (e.g., a linear polarizer between $1/4 \lambda$ retarders), c) a translector having a first side adjacent to the polarizer and a second side (e.g., a partial mirror that reflects light in a direction from the circular polarizer and transmits light from the opposite direction), and d) a light source adjacent to the second side of the translector.

Maeda requires the use of twisted nematic (TN) liquid crystal material which is known to be very different than the chiral nematic liquid crystal material of the present invention that includes focal conic and planar textures that are stable in the absence of an electric field (i.e., cholesteric liquid crystal material). These materials differ, *inter alia*, in terms of liquid crystal textures and optical properties. Moreover, Maeda does not disclose using cholesteric liquid crystal material, along with an adjacent “ambidextrous circular polarizer” as this component is understood in light of the present specification (e.g., comprised of a linear polarizer sandwiched between two $1/4$ waveplates). Instead, it discloses a linear polarizer upstream of a TN material, and a polarized light separator downstream of the TN material. The polarized light separator of Maeda is not an ambidextrous circular polarizer. Also, Maeda’s disclosure of cholesteric liquid crystal material appears to be limited to a polarized light separator that includes one or more $1/4\lambda$ plates and a cholesteric layer. Maeda does not disclose a cholesteric liquid crystal display material which is intended to be addressed to form an image. Therefore, Maeda fails to disclose the claimed combination of elements including a cholesteric liquid crystal material and an ambidextrous circular polarizer. Maeda’s disclosure of a cholesteric material in its polarized light separator is deficient in that there is no disclosure of an adjacent ambidextrous circular polarizer (i.e., the cholesteric material of Maeda is part of its polarized light separator). Maeda also does not disclose the

additional feature of a translector (e.g., which transmits light from the light source and reflects light from the opposite direction) in combination with the 1) cholesteric liquid crystal display material and 2) ambidextrous circular polarizer.

Aso is not relevant in that it does not disclose cholesteric liquid crystal material. Aso does not compensate for the deficiencies of Maeda.

There is no motivation provided in either Maeda or Aso to modify Maeda by replacing the TN liquid crystal material of its display with cholesteric liquid crystal material or to use such cholesteric material along with the claimed combination of components. Even assuming for the sake of argument that there was some motivation in the cited references to modify Maeda, which it is submitted there is not, the device of Maeda could not function as intended if its TN material were replaced with cholesteric liquid crystal display material in combination with the other components of Maeda. The cited references do not provide a description of how to make an operational back lit display that employs cholesteric liquid crystal display material. Therefore, the Office Action has not established a *prima facie* case of obviousness. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 2-5 depend from claim 1 and are patentably distinguished from Maeda and Aso for the same reasons as claim 1 and in view of the additional features added by these claims.

4. Claims 7-18 and 26 were rejected under 35 U.S.C. §103 in view of Maeda further in view of Aso.

As discussed above, Maeda does not disclose or render obvious the features of claim 1. Aso does not remedy the deficiencies of Maeda. Therefore, claims 7-11, which depend from claim 1, are not obvious in view of Maeda.

Independent claim 12 is more narrow than claim 1 in that it specifies that the planar texture has a circular polarization of a predetermined handedness, and the use of a linear polarizer between 1/4 wave retarders. Because Maeda does not disclose the features of claim 1 (in particular, use of cholesteric liquid crystal display material that can produce an image) combined with ambidextrous circular polarizer, translector and

light source, it does not disclose the more narrow, combined features of claim 12.

Claims 13-18 depend from claim 12 and are patentable for the same reasons as claim 12, and further because of their added features.

Claim 26 features the combination of a) chiral nematic liquid crystal display material located between first and second substrates, the material including focal conic and planar textures that are stable in the absence of an electric field, wherein the liquid crystal material reflects light from the display that has an S3 Stokes parameter greater than 0.75, b) an ambidextrous circular polarizer adjacent to the first substrate, c) a translector having a first side adjacent to the polarizer and a second side, and d) a light source adjacent to the second side.

As discussed above, Maeda is deficient in that it does not disclose the claimed cholesteric liquid crystal display material but instead discloses TN liquid crystal display material. Maeda is also deficient because it does not disclose the claimed arrangement of cholesteric liquid crystal display material, ambidextrous circular polarizer, translector and light source. The Office Action is impermissibly picking and choosing isolated disclosures in the references in an attempt to meet the features of the claimed invention. This amounts to impermissible hindsight reconstruction in which Applicants' specification is used as a roadmap against them in this and in the other rejection.

For example, Aso does not teach how to produce light having the recited S3 Stokes parameter from cholesteric liquid crystal display material. Cholesteric liquid crystal material is not even mentioned as a display material in Maeda; TN material is. Contrary to the assertion on page 9 of the Office Action, it is respectfully submitted that Maeda (col. 13, line 20) does not disclose an ambidextrous circular polarizer, as this component is understood in light of the present specification, adjacent to the first substrate that contains cholesteric liquid crystal display material. The reference to a translector, as this component is understood in light of the present specification, is not featured in the last four lines of the abstract, despite the assertion in the Office Action, nor is such a device disclosed in combination with the other featured components.

Therefore, it is submitted that a *prima facie* case of obviousness has not been made in connection with claim 26. Accordingly, withdrawal of this rejection is requested.

Claims 35-43 have been added hereby. Claim 35 features a liquid crystal display device, comprising:

a layer of chiral nematic liquid crystal material including focal conic and reflective planar textures that are stable in an absence of an electric field, said layer having a first side and a second side, the second side being closer to a viewer of the display device than said first side;

means for selectively addressing regions of the liquid crystal material effective to cause said liquid crystal material to exhibit the focal conic and reflective planar textures resulting in an image that can be seen by the viewer of the display device;

an ambidextrous circular polarizer comprising a first quarter wave retarder located adjacent to said first side of said liquid crystal layer, a second quarter wave retarder and a linear polarizer located between said first quarter wave retarder and said second quarter wave retarder;

a translector having a light reflective side adjacent to said second quarter wave retarder and a light transmitting side, the light reflective side being adapted to reflect light traveling from said circular polarizer; and

a light source adjacent to the light transmitting side, wherein said light source is selectively energizable to emit light and said translector is adapted to enable said emitted light to pass from said light transmitting side therethrough toward said circular polarizer.

The features of new claims 35-43 are not disclosed or suggested by the cited references for the reasons given above.


It is respectfully submitted that the above amendments, taken in conjunction with the foregoing remarks, place all pending claims of this application in condition for allowance. Accordingly, an early Notice of Allowance for this application is respectfully

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solicited. Should Examiner Rao wish to expedite the prosecution of this application, he is encouraged to telephone the undersigned.

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Respectfully submitted,


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